CLAIMS

1. (Amended) A multi-frequency antenna duplexer comprising:

a package, and

a plurality of antenna duplexers, mounted in said package, having different passing bands from each other,

wherein each of said plurality of antenna duplexers includes a transmitter surface acoustic wave (SAW) filter and a receiver SAW filter having a passing band different from the passing band of the transmitter SAW filter,

the transmitter SAW filter of said each of the plurality of antenna duplexers is formed on a first piezoelectric substrate, and

the receiver SAW filter of said each of the plurality of antenna duplexers is formed on a second piezoelectric substrate.

Sub a1

2. (Amended) The multi-frequency antenna duplexer of claim 1,

wherein in each of the receiver SAW filters, a phase shift substrate for rotating a phase of a transmission band of said multi-frequency antenna duplexer including said each of the receiver SAW filters is incorporated between the first piezoelectric substrate and the second piezoelectric substrate in the package.

3. (Amended) The multi-frequency antenna duplexer of claim 2,

wherein at least first and second transmitter SAW filters are formed on the first piezoelectric substrate,

at least first and second receiver SAW filters are formed on the second piezoelectric substrate,

the first transmitter SAW filter and the first receiver SAW filter are

disposed nearly adjacent to each other by way of the phase shift substrate, and

the second transmitter SAW filter and the second receiver SAW filter are disposed nearly adjacent to each other by way of the phase shift substrate.

4. (Amended) The multi-frequency antenna duplexer of claim 2,

wherein the phase shift substrate is formed in an inner layer of the package.

5. An multi-frequency antenna duplexer comprising:

a package, and

a plurality of antenna duplexers, mounted in said package, having different passing bands from each other,

wherein each of said plurality of antenna duplexers includes a transmitter filter and a receiver filter having a passing band different from a passing band of the transmitter filter,

at least one of the transmitter filter and the receiver filter is a bulk wave filter, and

when one of the transmitter filter and the receiver filter is the bulk wave filter, another is a surface acoustic wave (SAW) filter.

6. The multi-frequency antenna duplexer of claim 5,

wherein the receiver filter of any one of the plurality of antenna duplexers is the SAW filter, in the SAW filter, a phase shift substrate for rotating a phase of a transmission band of the antenna duplexer including the SAW filter is incorporated in the package.

7. The multi-frequency antenna duplexer of claim 6,

wherein the phase shift substrate is formed in an inner layer of the package.

8. (Amended) A multi-frequency antenna duplexer comprising:

a package,

two antenna duplexers, mounted in said package having, different passing bands from each other, and

a branching filter for coupling antenna terminals of the two antenna duplexers and one antenna terminal included in the package,

wherein each of said two antenna duplexers includes a transmitter surface acoustic wave (SAW) filter and a receiver SAW filter having a passing band different from a passing band of the transmitter SAW filter,

the transmitter SAW filter of each of the two antenna duplexers is formed on a first piezoelectric substrate, and

the receiver SAW filter of each of the two antenna duplexers is formed on a second piezoelectric substrate.

Sub a2

9. (Amended) The multi-frequency antenna duplexer of claim 8,

wherein in each of the receiver SAW filters, a phase shift substrate for rotating a phase of a transmission band of said multi-frequency antenna duplexer including said each of the receiver SAW filter is incorporated between the first piezoelectric substrate and the second piezoelectric substrate in the package.

10. (Amended) The multi-frequency antenna duplexer of claim 9,

wherein at least first and second transmitter SAW filters are formed

on the first piezoelectric substrate,

at least first and second receiver SAW filters are formed on the second piezoelectric substrate,

the first transmitter SAW filter and the first receiver SAW filter are disposed nearly adjacent to each other by way of the phase shift substrate, and

the second transmitter SAW filter and the second receiver SAW filter are disposed nearly adjacent to each other by way of the phase shift substrate.

11. (Amended) The multi-frequency antenna duplexer of claim 9,

wherein the phase shift substrate and the branching filter are formed in an inner layer of the package.

12. A multi-frequency antenna duplexer comprising:

a package,

two antenna duplexers, mounted in said package, having different passing bands each other, and

a branching filter for coupling antenna terminals of the two antenna duplexers and one antenna terminal included in the package,

wherein each of said two antenna duplexers includes a transmitter filter and a receiver filter having a passing band different from a passing band of the transmitter filter,

at least one of the transmitter filter and the receiver filter is a bulk wave filter, and

when one of the transmitter filter and the receiver filter is the bulk wave filter, another is a surface acoustic wave (SAW) filter.

13. The multi-frequency antenna duplexer of claim 12,

wherein the receiver filter is the SAW filter, in the SAW filter, a phase shift substrate for rotating a phase of transmission band of the antenna duplexer including the SAW filter is incorporated in the package.

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14. The multi-frequency antenna duplexer of claim 13,

wherein the phase shift substrate and the branching filter are formed in an inner layer of the package.